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Terquem.—Cinquième Mémoire sur les Foraminifères du système Oolithique. From the author.

Guyot, A.—Louis Agassiz. A Biographical Memoir. Read before the National Academy, 1877–78. Princeton, N J., 1883. From the author.

Scott, W. B., and Osborn, H. F.—On the skull of *Orthocynodon*.—

Osborn, H. F.—On *Achænodon*, an Eocene Bunodont.—

Bruce, A. T.—Observations upon the brain casts of Tertiary mammals.—

Scott, W. B.—On *Desmatotherium* and *Dilophodon*, two new Eocene lophiodonts. Contributions from the E. M. Museum of Geology and Archæology of Princeton College, Bulletin No. 3.

Ryder, J. A.—On the mode of fixation of the fry of the Oyster. From the author.

Goode, G. B., and Bean, T. H.—Bulletin of the Museum of Comparative Zoölogy at Harvard College. Reports on the results of dredging, under the supervision of A. Agassiz, on the east coast U. S. XIX. Report on the Fishes. From the authors.

Lydekker, R.—Synopsis of the fossil Vertebrata of India, and Note on the Bijori Labyrinthodonts. Ext. Records Geol. Survey of India, 1883. From the author.

—*Palæontologica Indica*. Series x. Indian Tertiary and Post-tertiary Vertebrata. Vol. II, Pt. 4. Siwalik Camelopardide. Calcutta, 1883. From the author.

Hulke, J. W.—An attempt at a complete osteology of *Hypsilophodon foxii*, a British Wealden Dinosaur. Ext. Philos. Trans. of the Royal Society, Part III, 1882. From the author.

—Address delivered at the anniversary meeting of the Geological Society of London, Feb. 16, 1883. From the author.

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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.¹

AFRICA.—A journey undertaken by F. C. Selous in the Mashuna country, lying between the Matabele settlements and the Zambesi, has resulted in a considerable addition to our knowledge of this region. The great mountain chain of Umvukwe, running north-east to south-west forms the water-shed—all streams rising on its north-western side flow into the Zambesi, while those issuing from its south-eastern flanks must run into the Mazo. A series of high and rugged ridges run in an east and west direction from the western flank of the Umvukwe mountains, and between these ridges flow the Umquasi, Mutiki, Mabane, Umpinge and Dande, all tributaries of a large river flowing northward into the Zambesi, and called the Panyame, Manyame or Hanyane. This river, which on other maps is shown as joining the Zambesi west of the town of Zumbo, is by Mr. Selous stated to enter fifteen miles at least to the east of that place. Between the ridge that bounds the valley of the Dande to the north, and the Zambesi, is a nearly flat and very dry district covered with *mopani* forests. In crossing this dry belt the Panyame and its tributaries as well as the Umsengaisi, which flows into the Zambesi about a degree further to the east, become broad-bedded sand-rivers

¹ This department is edited by W. N. LOCKINGTON, Philadelphia.

with little or no water. These lowlands swarm with Tsetse flies. The Umsengaisi is the Zingesi of the map of the Royal Geographical Society.

The delta and lower course of the Sabi river, which enters the Indian ocean about 21° S. lat., has been correctly surveyed, but at the cost of the lives of Capt. T. L. Phipson-Wybrants, the leader of the party, and of Dr. Ward Carr, F.G.S. The lower district, called Machanga, is occupied by the Tongas, subjects of Umzila, whose kraal is about 250 miles farther westward. The district around the Sabi, when the higher lands are reached, is exceptionally fertile.

The Thomson expedition is safe. Mr. Thomson left Bura, 100 miles from Mombasa, for Taveta, at the south-eastern foot of Kilimanjaro, on March 29th.

The Ma-Gwamba, or "Knobnoses," as the Boers call them, living north and south of the Limpopo, are by Pasteur Berthoud stated, from linguistic evidence, to be of Zulu stock, and thus not related to the Chuana. These Gwamba consider Umzila and his people to be Zulu also, and the Ba-Tonga are stated to be akin to the Gwamba. The Gwamba language is a sister of the Zulu. If Berthoud's statements are true, the tribe is one of great numerical importance.

Herr Pechuel-Loesche, who has served for some years as second in command to Stanley, has given a clear description of the mountainous belt, 200 miles wide, which shuts the Upper Congo from the coast. This range is of Cambrian age, and of slight elevation, averaging 700 to 1000 feet in height, and only here and there reaching 3300. It consists of numerous parallel ridges, between which run affluents of the Congo, which is the only stream of the region that cut across the entire system. Thus the Congo runs in a ravine the whole way, and its bed has a fall of 928 feet in about 300 nautical miles. Throughout this distance dangerous rapids abound, but the only vertical fall is Isangila, which is only sixteen feet high, and does not occupy the entire width of the stream. Some of the mountain brooks have cut their courses down to the level of the main river, but other larger rivers that flow over horizontal strata enter by a cataract. Thus the Luenga falls from a height of more than 300 feet, and the Luvubi from 500 feet. The Congo rises from September to January, and again in April and May (the rainy season) when the waterfalls disappear under the swollen waters.

The summits of the mountains are rounded and covered with grass and small bushes, but the valleys contain forests of lofty trees. Further to the north is the great forest of Tschiyombe.

Dr. Pechuel-Loesche states that the "Makoko" from whom De Brazza claims to have obtained a section of the Congo region, is certainly nothing more than a local chief. Makoko simply means "the ruler of the stream," and there are several. One is

the trusted friend of Stanley, and sold him a large tract of land, and the others are only similar kinglets ruling small districts.

M. Mosionas claims to have discovered the descendants of the people from whom the ancient Egyptians sprung. This honor he attributes to the Hadendoas, a tribe of the Egyptian Soudan. He maintains that he has found among them evident traces of the language, manners, customs and beliefs of ancient Egypt.

Dr. Bayol's scientific mission in Senegal has resulted in the discovery of a forest of ebony trees six miles in extent, and of forty-five wood essences.

AMERICA.—Mr. A. P. Maudslay recently read before the Royal Geographical Society an account of his investigations among the ruined cities of Guatemala. He visited Quirigua, where he discovered several fine monoliths; Copan, where a monolith covered all over with hieroglyphics in low relief has lately been unearthed; Tikal, a town about twenty miles from Lake Peten, and previously visited only by Bernouilli; and Usumacinta, a hitherto unknown place. At Tikal are five great pyramidal temples, and many houses of stone with stone roofs. Many of the lintels of the doorways are elaborately carved. Usumacinta is smaller, and the houses differ from those of Tikal in having their interiors broken up into recesses by inside buttresses that support the roof, which spans a wider area, and by the employment of stone instead of sapote wood for the lintels, many of which are carved.

Captain C. E. Dutton is organizing his forces for a summer campaign in the Cascade range, from Mt. Shasta to Mts. Hood and Ranier, a region which contains possibly the most colossal outpour of volcanic matter in the world.

Dr. L. Stegner contributes to *Naturen* an interesting account of the Kommandorski islands, which form the western group of the Aleutian archipelago. One of these is named after Bering, whose shipwreck and death occurred there; the other is Mednoj. Ostrov, or Copper island, from the large amount of pure copper found there. The islands consist generally of deep narrow valleys separated by rocky heights of from 1000 to 2000 feet, and are geologically allied to Kamschatka, except at the north of Bering's island, where raised beaches and terraces have been left by the subsidence of the sea. A Russo-American fur company is established here. The vegetation is stunted and sparse, presenting a great contrast to that of Kamschatka, which, spite of its position, has an exuberant growth of birches, alders, willows, wild roses, rhododendrons, lilies, etc., far excelling that found in Norway, as also an enormous variety of birds, including "*Acrocephalus dybowskii*," a sedge-warbler, *Locustella lanceolata*, which possesses a grasshopper-like cry, a cuckoo, pipits, chats and warblers.

Dr. Otto Finsch states that the Gilbert or Kingsmill islands,

consisting of eighteen atolls, and with an area of only twelve square miles, contain 37,000 inhabitants, while the Marshall group with thirty-five square miles, distributed among thirty atolls, has only 10,000. Four thousand ethnological specimens, illustrating the lives of these islanders and of those of New Britain, have been collected by this traveler, also some interesting prehistoric remains from Ponapé, one of the Carolines, many skulls and a very large collection of vertebrates and invertebrates.

The Marshall islanders are rapidly losing their ancient customs, and Herr Finsch believes that the great sea canoe, which he has brought away, will soon be the last of those with which this people, though without nautical knowledge, won reputé as mariners and undertook long journeys. European skiffs will soon supersede them.

The people of the Gilbert islands retain more of their original manners than those of the Marshall islands.

The Maneap or assembly house of Butaritari, one of this group, is 250 feet long by 114 wide; dimensions which are remarkable in a structure held together by cords of cocoa-nut fibers.

ASIA.—The six hundred thousand square miles contained in Persia form a plateau roughly averaging from three thousand to five thousand feet above the sea, and the entire region, according to Col. Champain, is not only very poorly provided with means of communication, but must ever remain difficult of access on account of its intersection by numerous barren mountain ridges. The only fertile spots, some wondrously productive, are the valleys between these ranges. The Russians are improving their communications with this country to a considerable extent, as a regular line of steamers plies between the Volga and the Persian ports of the Caspian, between which and Tehran run almost the only good roads in the country.

The changes of level of the Caspian puzzle geographers. It has risen and fallen at irregular intervals since 1780, but was ten feet lower in 1830 than in 1780. Lenz made permanent marks at Baku in 1830 at the sea level, but the oscillations since that date have shown no sensible decrease. On May 30, 1853, the level was 2 ft. 1.3 in. lower than in March, 1830, but in September, 1854, the high-water level was 1½ ft. above that of May 30, 1853, and on June 4, 1882, it was 10½ in. higher than in 1830.

M. Yadrintseff states that throughout Northern and Middle Siberia the aborigines are decreasing in number, although this is not the case with the Tartars of the south, who have kept their pasture lands. The Tartars of Middle Siberia, once a class of privileged merchants, are decreasing, and are among the poorest of the population. The Ostyaks and Samoyedes are in a miserable condition.

From a paper by M. Smicroff, published in the *Izvestia*, it is evident that the climate of the Caucasus is quite continental. The average annual mean temperatures are $5^{\circ} 4'$ Cels. at Alexanderpol, $8^{\circ} 5'$ at Stavropol, $12^{\circ} 6'$ at Tiflis, and $14^{\circ} 3'$ to $14^{\circ} 5'$ at Bakou, Lenkoran, Kutais, Poti, and Redut-kaleh, but the yearly range of the average diurnal temperature is in most cases from 20 to 30° . The highest temperature observed was $38^{\circ} 5'$ at Tiflis, the lowest $-25^{\circ} 6'$ at Stavropol. It is only in Southern Transcaucasia that localities are found where the temperature does not fall below -10° . The southern limit of the region beyond which temperatures lower than -20° are not found runs from the Crimea to the Caucasus range, and along the northern slope of the last towards Khiva, Tashkend, and Peking. The greatest range of temperature observed was $60^{\circ} 4'$ at Stavropol, while at Redut-kaleh it is reduced to $41^{\circ} 6'$. Large though this range is, it is small compared with that of Yakutsk, which varies from $+38^{\circ} 8'$ in summer to -62° in winter.

M. Balkashin, in the *Izvestia*, concludes that the Kirghiz are a federation of several nomad tribes that formerly ranged from Southern Russia to Lake Baikal, and were mingled together by Genghiz Khan and his successors.

M. Grigorieff, in the *Izvestia*, shows that Henriette island is the land sighted by Hedenström and Sannikoff from New Siberia in 1810, and that Bennett island was seen by Sannikoff from the northern coast of New Siberia in 1811. Thus the discoveries of the ill-starred *Jeannette* are reduced to *nil*.

GEOLOGY AND PALÆONTOLOGY.

A NEW PLIOCENE FORMATION IN THE SNAKE RIVER VALLEY.—In 1870 the Smithsonian Institution submitted to me for determination a series of specimens of fishes which had been obtained by Mr. Clarence King, then in charge of the U. S. Geological Survey of the 40th parallel, in the south-western part of Idaho Territory. As a result of my examination I published descriptions of eleven species of fresh-water fishes,¹ and three of Astaci. The first specimens derived from this formation were sent by Dr. J. S. Newberry to Dr. Leidy, who described two species of fishes. Subsequently Professor Condon, of the University of Oregon, discovered the formation with some of its fossils on Willow creek, in Eastern Oregon, fifty miles north-west of the original locality. In 1880 I sent Mr. J. L. Wortman to this region, and he obtained twenty-two species from these and other localities, of which ten were new to science. He also procured bones of two species of

¹ On Cretaceous and Tertiary Reptilia and Fishes, by Professor E. D. Cope, November, 1870, Proceedings Amer. Philos. Society.